CLAIMS

1. A method of preparing a collagen sponge, comprising the steps of:
- preparing a collagen gel,
- mixing air into the collagen gel, so as to obtain a collagen foam,
- drying the collagen foam, so as to obtain a dry block of collagen sponge having chambers therein,
- isolating, from the block of collagen sponge, parts of sponge showing at least one of:
  - a chamber diameter of more than 0.75 mm and less than 4 mm, and
  - an average chamber diagonal dimension of 3 mm.

2. A method according to claim 1, wherein the collagen content of the isolated parts of sponge is 50 to 100%.

3. A method according to claim 2, wherein the collagen gel comprises collagen material of different types from at least one of the following sources: mammalian, transgenic and recombinant sources.

4. A method according to claim 3, wherein the collagen comprises material from tendons selected from the group consisting of equine tendons, bovine tendons and human tendons.

5. A method according to claim 3, wherein the step of preparing the collagen gel comprises the steps of:
- storing the tendons at a temperature between -10°C and -30°C, and peeling the tendons,
- removing foreign protein from the tendons,
- reducing germ content in the tendons,
- swelling the tendons,
- homogenising the swelled tendons.

6. A method according to claim 5, wherein the step of reducing germ content comprises adding an acid and an organic solvent to the tendons.

7. A method according to claim 6, wherein acid is an organic acid, such as lactic acid.

8. A method according to claim 6, wherein the organic solvent is an alcohol, such as ethanol.

9. A method according to claim 5, wherein the step of swelling the tendons comprises adding lactic acid to the tendons.

10. A method according to claim 5, wherein the acid has a pH value in the range of 1 to 4, such as 1.5 to 3.5, such as 2.5 to 3.0.

11. A method according to claim 5, wherein the lactic acid is a 0.45% lactic acid.

12. A method according to claim 5, wherein the step of swelling the tendons comprises storing the tendons at a temperature of 4°C to 25°C for a period of 48 to 200 hours.

13. A method according to claim 12, wherein the tendons are stored for a period of 100 to 120 hours.

14. A method according to claim 5, wherein the step of homogenising the swelled tendons comprises obtaining a substance comprising particles of tendons, the particles having a length or diameter of 0.8 to 1.2 cm.

15. A method according to claim 5, wherein the step of homogenising the swelled tendons comprises obtaining a substance having a viscosity of 2 to 20 Ncm.

16. A method according to claim 5, wherein the step of homogenising the swelled tendons is carried out by means of a toothed disk mill.

17. A method according to claim 1, wherein the collagen gel has a dynamic viscosity of 2-20 Ncm.

18. A method according to claim 1, wherein the step of mixing air into the collagen gel comprises the steps of:

- mixing ambient air into the gel by means of a mixer so as to generate a collagen foam,
- feeding the mixed gel foam into a fractionising channel,
- separating collagen gel and collagen foam contained in the fractionising channel.

19. A method according to claim 18, wherein at least some of the collagen gel separated from the collagen foam in the fractionising channel is led back to the mixer.

20. A method according to claim 19, wherein the ratio between the amount of collagen gel which is led back to the mixer from the fractionising channel and the amount of fresh collagen gel led to the mixer is between 0.1 and 0.5.

21. A method according to claim 18, wherein the step of separating collagen gel and collagen foam comprises the steps of:

- separating a selected part of the collagen foam contained in the fractionising channel,
- leading the selected part of the collagen foam out of the fractionising channel for drying thereof.

22. A method according to claim 18, further comprising maintaining a temperature between 15°C and 40°C in the fractionising channel.

23. A method according to claim 1, further comprising, subsequent to mixing air into the collagen gel, homogenising the collagen foam for a period of 2 to 4 minutes.

24. A method according to claim 1, further comprising, prior to the step of drying the collagen foam and subsequent to the step of mixing air into the collagen gel, adding a neutraliser to the collagen foam and neutralising the collagen foam in order to achieve a pH-value in the collagen foam between 6.5 and 8.5.

25. A method according to claim 24, wherein the neutraliser comprises an ammonia solution.

26. A method according to claim 24, wherein the collagen foam is neutralised for a period of 5-30 hours.

27. A method according to claim 26, wherein the collagen foam is neutralised for a period of 20-30 hours.

28. A method according to claim 1, wherein the step of drying comprises drying at a temperature between 15°C and 60°C for a period of 48-200 hours, so as to obtain a dry collagen sponge.

29. A method according to claim 28, wherein the step of drying is carried out at a pressure of 700 to 900 mbar.

30. A method according to claim 1, wherein the step of drying comprises drying at a temperature between 15°C and 40°C for a period of 100-200 hours.

31. A method according to claim 1, wherein the collagen sponge fulfils at least one of the following criteria:

- pH-value between 5.0 and 6.0,
- lactic acid content at the most 5%,
- ammonium content at the most 0.5%,
- soluble protein content, calculated as albumin content, at the most 0.5%,
- sulphate ashes content at the most 1.0%,
- heavy metal content at the most 20 ppm,
- microbiological purity, at the most 10^3 CFU/g,
- collagen content of 75 to 100%,
- density of 1 to 10 mg/cm^3,
- elasticity module in the range of 5-100 N/cm.

32. A method according to claim 1, wherein the collagen sponge has a water content of not more than 20%.

33. A method according to claim 1, wherein the step of isolating parts of collagen sponge comprises dividing the collagen sponge into a plurality of parts by cutting.

34. A method of preparing a collagen sponge, comprising the steps of:
- preparing a collagen gel,
- mixing air into the collagen gel, so as to obtain a collagen foam,
- drying the collagen foam, so as to obtain a dry block of collagen sponge having chambers therein,
- isolating, from the block of collagen sponge, parts of sponge having the following properties:
  - elasticity module in the range of 5 to 100 N/cm,
  - density in the range of 1 to 10 mg/cm^3,

  and at least one of:
  - chamber diameter of more than 0.75 mm and less than 4 mm, and
  - a chamber diameter average of at most 3 mm.

35. A device for extracting a part of a collagen foam and for degenerating another part of the collagen foam to a collagen gel, comprising:
- a fractionising channel comprising an inlet for receiving a flow of collagen foam, an outlet for a part of the flow of collagen foam, and a bottom portion which is inclined downwards in the direction of the flow of collagen foam,
- at least one outlet for collagen gel at the bottom portion of the fractionising channel,

wherein the position of the outlet is movable in a vertical direction at an end of the fractionising channel.

36. An elongated collagen sponge having a through-going passage and a flexible wall.

37. An elongated collagen sponge according to claim 36 and having a cross-section which is one of circular and elliptical.

38. An elongated collagen sponge according to claim 37, and having outer dimensions allowing the sponge to be used for at least one of:
- closing wounds,
- re-establishing walls in a mammalian gastrointestinal funnel system.

39 ~~40~~. An elongated collagen sponge according to claim 37, wherein the passage has diagonal dimensions corresponding to cross-sectional dimensions of mammalian gastrointestinal funnels.

40 ~~41~~. An elongated collagen sponge according to claim 39 having outer dimensions corresponding to the inner dimension of the human rectum, so as to make the sponge suitable for being applied to the rectum wall.